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EXAMINER	
WILKINS III, HARRY D	
ART UNIT	**PAPER NUMBER**
1742	

DATE MAILED: 12/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/645,132	REINHARD, FRED P.	
	Examiner	Art Unit	
	Harry D. Wilkins, III	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☒ Claim(s) *12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 12 is objected to because of the following informalities: "to" in line 2 does not fit grammatically. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6, 7, 11, 14, 15 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Faita (US 5,770,035).

Faita anticipate the invention as claimed. Faita teaches (see figure 1) an electrolyzer including a first cell frame 7 including an anode therein, a second cell frame 14 including a cathode therein and a compartment formed between the first cell frame and the second cell frame wherein a membrane is positioned intermediate the anode and cathode.

Regarding claim 2, Faita teaches gaskets (15 and 16) placed intermediate each of the anode or cathode and the membrane.

Regarding claims 3 and 4, Faita teaches (see paragraph spanning cols. 3 and 4) using a screen anode and a mesh cathode. Faita teaches (see col. 5, lines 36-65) attaching the anode and cathode to corresponding bus bars.

Regarding claims 6 and 7, these claims relate to the manner in which the claimed apparatus operates. The manner in which an apparatus is not given patentable weight as long as the apparatus was capable of operating in the claimed fashion. See MPEP 2114. The device of Faita would have been capable of operating in the claimed fashion. Thus, Faita teaches the apparatus as claimed.

Regarding claim 11, the apparatus of Faita included an in-flow port 13 and an out-flow port 12 both placed along a perimeter of the frame, the out-flow port 12 being above the in-flow port 13.

Regarding claims 14 and 15, Faita teaches (see figure 1) a first cell frame 7 including an anode therein, a second cell frame 14 including a cathode therein and a compartment formed between the first cell frame and the second cell frame wherein a membrane is positioned intermediate the anode and cathode. Faita further teaches gaskets (15 and 16) placed intermediate each of the anode or cathode and the membrane.

Regarding claim 18, this claim relates to the manner in which the claimed apparatus operates. The manner in which an apparatus is not given patentable weight as long as the apparatus was capable of operating in the claimed fashion. See MPEP 2114. The device of Faita would have been capable of operating in the claimed fashion. Thus, Faita teaches the apparatus as claimed.

4. Claims 1, 6, 7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lipsztajn et al (US 4,915,927).

Lipsztajn et al anticipate the invention as claimed. Lipsztajn et al teach (see abstract and figure 1) a membrane electrolyzer including a first cell frame including an anode, a second cell frame including a cathode and a membrane 24 positioned between the anode and cathode.

Regarding claims 6 and 7, these claims relate to the manner in which the claimed apparatus operates. The manner in which an apparatus is not given patentable weight as long as the apparatus was capable of operating in the claimed fashion. See MPEP 2114. The device of Lipsztajn et al would have been capable of operating in the claimed fashion. Thus, Lipsztajn et al teach the apparatus as claimed.

Regarding claim 11, each cell frame of Lipsztajn et al included an in-flow port and an out-flow port arranged above the in-flow port.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 5, 13, 16, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faita (US 5,770,035).

The teachings of Faita are described above.

Regarding claims 5, 13 and 17, Faita does not teach a sidewall or endwall of the second cell frame being transparent or translucent.

One of ordinary skill in the art would have found it obvious to have made either or both of the sidewall and endwall of a cell frame to be transparent in order that the indicators of a reaction (such as formation of gas bubbles) might be viewed by the operator.

Regarding claim 16, it would have been obvious to one of ordinary skill in the art to have duplicated the individual cell of Faita by adding a third (identical to first) cell frame and a fourth (identical to second) cell frame in order to increase production capacity of the device. It would have been obvious to one of ordinary skill in the art to have added a non-conductive spacer frame between the two cells in order to have avoided crushing the second and third (or first and fourth) cell frames.

Regarding claims 19 and 20, Faita does not expressly teach a tank containing a process solution to be treated. A process line inherently would have been present connected to in-flow port 5. One of ordinary skill in the art would have considered it obvious to have added a tank to the apparatus of Faita for holding the solution to be treated because the tank would have allowed a buffer of solution to be treated to be stored.

7. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faita (US 5,770,035) in view of Hirai et al (US 5,783,051).

The teachings of Faita are described above.

However, Faita is silent with respect to how the two cell frames are joined together.

Hirai et al teach (see figure 3) a conventional way of clamping two or more cell frames together by means of a first clamping frame (end plate) 60 and a second clamping frame (end plate) 60', a plurality of fastening rods 92 inserted through apertures on the clamping frames and a plurality of fastening components (96) positioned on a corresponding end of each rod.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the conventional clamping manner taught by Hirai et al to hold the two frames of Faita together because the clamping manner taught by Hirai et al provided a reliable, but easy to remove, manner for ensuring the cell would stay together.

Regarding claim 10, one of ordinary skill in the art would have found it obvious to have made the sidewall of the second cell frame to be transparent in order that the indicators of a reaction (such as formation of gas bubbles) might be viewed by the operator. It would have been obvious to ensure that any portion of the clamping frame which might block the transparent sidewall to also be transparent, or to have added an opening so that the view would remain clear.

8. Claims 2-5 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lipsztajn et al (US 4,915,927) in view of Faita (US 5,770,035).

The teachings of Lipsztajn et al are described above.

Regarding claim 2, Lipsztajn et al do not teach using screen spacers between the first and second cell frames and the membrane. Faita teaches (see figure 1) a cell made from cell frames wherein a screen spacer (gaskets 15 and 16) are used to provide a seal between the cell frames and a membrane to prevent electrolyte leakage.

Therefore, it would have been obvious to one of ordinary skill in the art to have used screen spacers (gaskets) as taught by Faita in the cell of Lipsztajn et al because the spacers provide a cell between cell frames and a membrane to prevent electrolyte leakage.

Regarding claims 3 and 4, Lipsztajn et al do not teach the shape of the anode and cathode. One of ordinary skill in the art would have found it obvious to have made the anode and cathode from mesh screens because mesh electrodes provide certain known advantages such as increased surface area over monolithic electrodes.

Regarding claims 5, 13 and 17, one of ordinary skill in the art would have found it obvious to have made the either or both the sidewall or end wall of the second cell frame to be transparent in order that the indicators of a reaction (such as formation of gas bubbles) might be viewed by the operator.

Regarding claim 12, as can be seen in figure 1, Lipsztajn et al further teach a non-conductive frame between the first and second frames and a second membrane 18, as claimed. As described above, it would have been obvious to one of ordinary skill in the art to have used screen spacers (gaskets) as taught by Faita in the cell of Lipsztajn et al because the spacers provide a seal between cell frames and a membrane to prevent electrolyte leakage.

Regarding claims 14 and 15, Lipsztajn et al fail to teach the use of screen spacers positioned between the adjacent pieces. As described above, it would have been obvious to one of ordinary skill in the art to have used screen spacers (gaskets) as

taught by Faita in the cell of Lipsztajn et al because the spacers provide a seal between cell frames (or electrodes) and a membrane to prevent electrolyte leakage.

Regarding claim 16, it would have been obvious to one of ordinary skill in the art to have duplicated the individual cell of Lipsztajn et al by adding a third (identical to first) cell frame and a fourth (identical to second) cell frame in order to increase production capacity of the device. It would have been obvious to one of ordinary skill in the art to have added a non-conductive spacer frame between the two cells in order to have avoided crushing the second and third (or first and fourth) cell frames.

Regarding claim 18, this claim relates to the manner in which the claimed apparatus operates. The manner in which an apparatus is not given patentable weight as long as the apparatus was capable of operating in the claimed fashion. See MPEP 2114. The device of Lipsztajn et al would have been capable of operating in the claimed fashion. Thus, Lipsztajn et al teach the apparatus as claimed.

Regarding claims 19 and 20, Lipsztajn et al teach (see figure 1) a process line 26 in fluid communication with the membrane electrolyzer. However, Lipsztajn et al do not teach a tank for storing the material to be fed to the electrolyzer. One of ordinary skill in the art would have considered it obvious to have added a tank to the apparatus of Lipsztajn et al for holding the solution to be treated because the tank would have allowed a buffer of solution to be treated to be stored.

9. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lipsztajn et al (US 4,915,927) in view of Hirai et al (US 5,783,051).

The teachings of Lipsztajn et al are described above.

However, Lipsztajn et al are silent with respect to how the two cell frames are joined together.

Hirai et al teach (see figure 3) a conventional way of clamping two or more cell frames together by means of a first clamping frame (end plate) 60 and a second clamping frame (end plate) 60', a plurality of fastening rods 92 inserted through apertures on the clamping frames and a plurality of fastening components (96) positioned on a corresponding end of each rod.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the conventional clamping manner taught by Hirai et al to hold the two frames of Lipsztajn et al together because the clamping manner taught by Hirai et al provided a reliable, but easy to remove, manner for ensuring the cell would stay together.

Regarding claim 10, one of ordinary skill in the art would have found it obvious to have made the sidewall of the second cell frame to be transparent in order that the indicators of a reaction (such as formation of gas bubbles) might be viewed by the operator. It would have been obvious to ensure that any portion of the clamping frame which might block the transparent sidewall to also be transparent, or to have added an opening so that the view would remain clear.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1, 3-7, 11 and 13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 13 and 14 of copending Application No. 10/763,691. Although the conflicting claims are not identical, they are not patentably distinct from each other because each and every feature of the present claims appears in claims 13 and 14 of the '691 application. .

Regarding claims 3 and 4, the '691 application does not claim the shape of the anode and cathode. However, one of ordinary skill in the art would have found it obvious to have made the anode and cathode from mesh screens because mesh electrodes provide certain known advantages such as increased surface area over monolithic electrodes.

Regarding claims 5 and 13, one of ordinary skill in the art would have found it obvious to have made the either or both the sidewall or end wall of the second cell frame to be transparent in order that the indicators of a reaction (such as formation of gas bubbles) might be viewed by the operator.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 2, 14-20 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 13 and 14 of copending Application No. 10/763,691 in view of Faita (US 5,770,035). The claims of the '691 application do not teach using screen spacers to separate the cell frames and membrane. However, Faita teaches (see figure 1) a cell made from cell frames wherein a screen spacer (gaskets 15 and 16) are used to provide a seal between the cell frames and a membrane to prevent electrolyte leakage. Therefore, it would have been obvious to one of ordinary skill in the art to have used screen spacers (gaskets) as taught by Faita in the cell of the '691 application because the spacers provide a cell between cell frames and a membrane to prevent electrolyte leakage.

This is a provisional obviousness-type double patenting rejection.

13. Claims 8-10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 13 and 14 of copending Application No. 10/763,691 in view of Faita (US 5,770,035) and Hirai et al (US 5,783,051). The claims of the '691 application are silent with respect to how the two cell frames are joined together. Hirai et al teach (see figure 3) a conventional way of clamping two or more cell frames together by means of a first clamping frame (end plate) 60 and a second clamping frame (end plate) 60', a plurality of fastening rods 92 inserted through apertures on the clamping frames and a plurality of fastening components (96) positioned on a corresponding end of each rod. Therefore, it would

have been obvious to one of ordinary skill in the art to have used the conventional clamping manner taught by Hirai et al to hold the two frames of Lipsztajn et al together because the clamping manner taught by Hirai et al provided a reliable, but easy to remove, manner for ensuring the cell would stay together.

This is a provisional obviousness-type double patenting rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Harry D. Wilkins, III/

Harry D Wilkins, III
Examiner
Art Unit 1742

hdw